

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

ORDER NO. 87-122

WASTE DISCHARGE REQUIREMENTS FOR:
PACIFIC GAS AND ELECTRIC COMPANY
PITTSBURG POWER PLANT
CLASS I AND II SURFACE IMPOUNDMENTS

The California Regional Water Quality Control Board, San Francisco Bay Region, (hereinafter called the Board) finds that:

1. Pacific Gas and Electric Company (hereinafter called the Discharger), owns and operates the Pittsburg Power Plant located west of the town of Pittsburg in Contra Costa County. The plant has seven natural gas or oil fired generating units with a combined capacity of 2002 megawatts. Wastewaters from operation and maintenance of the facility are stored and treated in five Class I hazardous waste and three Class II designated waste surface impoundments on site.
2. The Discharger originally submitted a Report of Waste Discharge (ROWD) on January 25, 1985 for issuance of waste discharge requirements for the continued operation of the surface impoundments at its Pittsburg Power Plant. The ROWD was considered incomplete and supplemental materials were submitted on May 1, 1985 and November 6, 1985. The November 6, 1985 submittal was the Discharger's Part B application (Part B) pursuant to the Resource Conservation and Recovery Act (RCRA). The ROWD was considered complete on September 12, 1986 when the correct filing fee was submitted.
3. The Board has issued Waste Discharge Requirements for this facility's discharge to surface waters under the National Pollutant Discharge Elimination System, Order No. 83-22. The permit has been amended twice by Order Nos. 84-15 and 86-47. The Board has also issued Waste Discharge Requirements for the Class I and II surface impoundments, Order No. 87-17. Order No. 87-17 implements the requirements of Title 23, Chapter 3, Subchapter 15 of the California Administrative Code (Subchapter 15).
4. The geologic conditions beneath the surface impoundments result from a combination of estuary deposits and Sacramento River deposits. Fill was placed over marshland peat and clay deposits on the western side of the site. The surface on the eastern side of the site is composed of clay rich deposits from floods and soil development. Beneath these low permeability upper deposits is an aquifer consisting of interconnected stream channel deposits and flood deposits generally from elevation -10 to -60 feet mean sea level or from 20 to 70 feet beneath the surface. A brown clay is found beneath the aquifer.
5. All surface impoundments are subject to regulation under Subchapter 15; the five Class I surface impoundments are also subject to the Toxic Pits Cleanup Act provisions of the Health and Safety Code, and federal regulations under RCRA.

6. The five RCRA regulated Class I hazardous waste surface impoundments are as follows:

a. Boiler Chemical Cleaning Solution Pond (BCCSP)

The BCCSP is constructed of three inches of reinforced concrete and lined with 80 mils of PVC. This was built in 1970. It is used for storage of waste boiler chemical cleaning solutions. This waste contains metal ions and is corrosive. Sodium hydroxide is added to the waste prior to entering the pond to raise the pH above 2. If necessary, additional sodium hydroxide is added to the pond to precipitate heavy metal hydroxides. The liquid supernatant is filtered, then discharged along with plant once-through cooling water to Suisun Bay pursuant to NPDES Permit No. CA0004880. The sludge is transported to an off-site Class I facility by a licensed hazardous waste transporter.

b. Boiler Chemical Cleaning Rinse Pond (BCCRP)

The BCCRP and BCCSP were once a single pond. A partition was erected in the original pond to create the two present ponds in 1984. The BCCRP is used to treat rinse water from the chemical cleaning of the boilers. The constituents in this pond are the same as those found in the BCCSP except in diluted concentrations. The treatment and disposal of the rinse waste is identical to that of the BCCSP waste.

c. Air Preheater Wash Pond (APWP)

The APWP is constructed of three inches of concrete and lined with 80 mils of PVC. The pond was also built in 1970. This pond is used for treating air preheater, fireside and stack washes. The waste contains solids which accumulate on the surfaces of these components, including metal ions. The waste is corrosive. Treatment consists of settling the solids and disposing of them at a Class I facility. The supernatant is discharged pursuant to NPDES Permit No. CA0004880.

d. Oil Sludge Pond (OSP)

The OSP is constructed of three inches of concrete and is a part of the oily water treatment system. It was built in 1953. The system receives wastewater from drains of the power block. The oil and sludge which are separated in the treatment process are stored in the OSP until they are transported to a Class I site by a licensed hazardous waste transporter. The waste contains dissolved metals, fuel oil residuals, and trace organics.

e. Demineralizer Neutralization Pond (DNP)

The DNP is constructed of three inches of concrete and lined with 30 mils of Hypalon. It was built in 1979. The regenerant wastes from the cation/anion demineralizer system are neutralized as they enter the pond. The wastes are considered corrosive. The effluent is discharged with the once-through cooling water pursuant to NPDES Permit No. CA0004880.

7. The Discharger plans to close the OSP and has submitted a closure plan for this pond dated May 1, 1987. The closure plan is under review.
8. The three Class II designated waste surface impoundments are as follows:

- a. Clarifier Sludge Pond (CSP)

The CSP has three inch concrete walls and a compacted clay bottom. It was built in 1953. The pond is used for settling sludge from the water treatment clarifier and building drains effluents. Supernatant is discharged pursuant to NPDES Permit No. CA0004880. The waste contains trace dissolved metals, aluminum sulfate, polyelectrolyte, and river water sediments.

- b. Oil Water Collection Pond (OWCP)

The OWCP is constructed of four inches of concrete. It was built in 1979. The OWCP is the first unit of the oily water treatment system. The pond receives oily wastewater from building drains, fuel oil tanks, containment area, and yard runoff. The collected wastewater flows to an API separator and a dissolved air flotation tank. The resultant oily sludge is discharged to the OSP. The treated effluent is discharged to the Oily Water Effluent Pond. The waste contains fuel oil residuals and trace metals. This pond does not receive hazardous waste, however the Department of Health Services indicates that the accumulated sludge may contain hazardous concentrations of some metals. The Discharger states that the sludge is non-hazardous.

- c. Oil Water Effluent Pond (OWEP)

The OWEP is constructed with four inches of concrete. It was built in 1953. The OWEP is the last unit in the oily water treatment system. It holds the treated water prior to discharge to the surge chamber and then to Suisun Bay with the once-through cooling water pursuant to NPDES Permit No. CA0004880. The waste contains fuel oil residuals and trace metals. This pond does not receive hazardous waste, however the Department of Health Services indicates that the accumulated sludge may contain hazardous concentrations of some metals. The Discharger states that the sludge is non-hazardous.

Findings Related to Subchapter 15

9. The eight surface impoundments must be modified or granted an exemption, and operated to comply with the requirements of Subchapter 15.
10. The Discharger may request the Board to grant exemptions to Subchapter 15 if both the following conditions are met: (1) the prescriptive standard is not feasible because it is unreasonably burdensome and will cost substantially more than alternatives, and is impractical and will not promote attainment of applicable performance standards; and (2) there is a specific engineered alternative that is consistent with the performance goal addressed by the particular construction or prescriptive standard, and affords equivalent protection against water quality impairment. The

Discharger was required by Order No. 87-17 to either demonstrate that its facility is in compliance with Subchapter 15 or apply for exemptions to particular sections of Subchapter 15.

11. The Discharger demonstrated in the Part B application compliance with specific sections of Subchapter 15 as follows:

<u>Section</u>	<u>Description</u>	<u>Surface Impoundments</u>
2530(d)	foundations supporting containment structures withstand effects of settlement, uplift, and compression	all Class I ponds
2531(c)	outside of 100-year floodplain	all ponds
2548(a)	two feet freeboard	BCCSP, BCCRP, APWP, OSP
2548(c)	prevent overfilling	all Class I ponds
2548(e)	prevent scouring at point of discharge and at waterline	all Class I ponds

12. The Discharger has documented compliance with Subchapter 15 in a submittal dated July 31, 1987 as follows:

<u>Section</u>	<u>Description</u>	<u>Surface Impoundments</u>
2530(c)	waste five feet above highest groundwater	BCCSP, BCCRP, APWP, DNP
2546(a)	Class I ponds withstand probable maximum precipitation	all Class I ponds
2546(a)	Class II ponds withstand 1000 year return 24 hour storm	all Class II ponds
2548(a)(b)	operation levels and waste input quantities to meet freeboard	all ponds,
2547	units withstand maximum credible earthquake	all ponds

13. The Discharger submitted exemption requests dated May 1, 1987 and March 13, 1987 for the following sections of Subchapter 15:

<u>Section</u>	<u>Description</u>	<u>Surface Impoundments</u>
2541(e)	general prescriptive construction standards	all ponds
2542	prescriptive liner requirements	all ponds
2543	leachate collection and removal system	CSP, OWCP
2531(b)(1)	natural geologic materials having hydraulic conductivities of not greater than 10^{-7} cm/s immediately underlying Class I ponds	all Class I ponds
2559	conduct vadose zone monitoring in the vicinity of Class I and II ponds	all ponds

14. The Discharger submitted an exemption request dated July 31, 1987 for the following section of Subchapter 15:

<u>Section</u>	<u>Description</u>	<u>Surface Impoundments</u>
2530(c)	waste 5 feet above highest ground water	OSP, CSP, OWCP, OWEP

15. The Discharger submitted a proposal to retrofit the Class I surface impoundments dated March 13, 1987. The proposal is to install three new 80 mil HDPE liners on top of the existing liner system and two leachate detection/collection systems. The proposal constitutes an exemption request from Sections 2531(b)(1), 2541(e) and 2542 of Subchapter 15 for the Class I surface impoundments.
16. The conceptual retrofit proposal for the Class I surface impoundments represents an acceptable engineering alternative to the natural geologic materials and to the prescriptive liner requirements of Subchapter 15. This is because the retrofitting proposal combined with the existing liner system and the nature of the wastes to be contained will meet the performance goals of the standards if the liners are properly designed and constructed, and that meeting the prescriptive standards would be infeasible given the unreasonable and unnecessary cost of the reconstruction it would require. It is not possible to meet the prescribed standards at this facility. The exemption request is granted on the condition that the Executive Officer determines that the final design plans and the construction of the liners, and leachate collection and removal systems are adequate to meet the performance goals of Sections 2541(e), 2542 and 2543 of Subchapter 15.
17. The Discharger has submitted a proposal to retrofit the OWCP by installing a 80 mil HDPE liner on top of the existing containment system and has requested an exemption to Section 2541(e), 2542, and 2543 of Subchapter 15.
18. The Discharger has proposed to continuing using the CSP without any modification and has requested an exemption to Section 2541(e), 2542, and 2543 of Subchapter 15.
19. Neither of the proposals and requests for exemption described in Findings 17 and 18 for the Class II ponds represent acceptable engineering alternatives to the prescriptive requirements in Subchapter 15 for liners and leachate collection system. Therefore, the exemption requests based on the proposals are denied.
20. Section 2559 of Subchapter 15 requires that the vadose zone be monitored to detect leakage from the surface impoundments. The Discharger has requested an exemption from vadose zone monitoring. The Discharger has never conducted vadose zone monitoring at the site nor has the Discharger ever demonstrated that vadose zone monitoring is not feasible. Therefore, the exemption request is denied based on the proposal.
21. WQPS for the vadose zone shall be established by the Board after one year of vadose monitoring has been completed.

22. Section 2547(a) of Subchapter 15 requires that all Class I and II surface impoundments be designed to withstand the maximum credible earthquake without damage to the foundation or to the structures which control leachate. The Discharger has submitted a report addressing the potential for liquefaction damage at the site.
23. The Discharger has not demonstrated that it is infeasible to operate the OSP, CSP, OWCP, and OWEP in a manner that will ensure the wastes will be a minimum of 5 feet above the highest anticipated elevation of underlying ground water. Therefore, the exemption request, based on the information submitted to date, is denied. A time schedule for compliance is included in this Order.

Findings Related to Groundwater Monitoring

24. The Discharger has been conducting groundwater monitoring since 1983 and is required to implement a full detection monitoring program in accordance with Article 5 of Subchapter 15.
25. The stratigraphy in the vicinity of the surface impoundments can be divided into seven distinct units. Basically, the stratigraphy from ground level down is as follows: a layer of artificial fill or natural surficial soils; a layer of organic or inorganic clay; a water bearing unit made up of silty sand, sand, gravel which contains a discontinuous low permeability layer; and a lower clay unit. Shallow perched water is found in the northwest portion of the site above the organic clay.
26. The surface impoundments are all located within 550 feet of Suisun Bay. Because of the proximity to the Bay, the groundwater beneath the site is tidally influenced, and the fluctuations are sufficient to actually reverse the direction of the groundwater gradients in the vicinity of the surface impoundments. Consequently, there is no truly upgradient or downgradient direction. Any leakage from the ponds may migrate in more than one direction depending on the tidal stage. In order to assure detection of leakage from the ponds into the groundwater, the point of compliance must be a plane completely surrounding the surface impoundments pursuant to Section 2553 of Subchapter 15.
27. Subchapter 15 specifies that groundwater Water Quality Protection Standards (WQPS) are to be set based on background groundwater quality. Since there is not a true upgradient direction in the area of the ponds, interim background water quality will be based on analyses of groundwater samples from wells judged to be least affected by the surface impoundments. Because there are large fluctuations in groundwater quality, the interim groundwater WQPS will be taken as the maximum concentrations observed in the wells judged to be least impacted by the ponds or from Primary Drinking Standards. Attainment of these interim standards will adequately protect the beneficial uses of the groundwater beneath the site and nearby surface waters until final groundwater WQPS can be established.
28. Because the interim groundwater WQPS are not based on data from upgradient or background wells, the prescribed statistical analysis to determine whether a significant difference has occurred in groundwater quality may

not be sufficient to indicate leakage from the ponds. Therefore, in addition to comparing the groundwater quality of each well to the WQPS, as required by Subchapter 15, the Discharger shall also compare the groundwater quality of each well to itself over time.

29. Recent groundwater dewatering and dredging operations at the Pittsburgh Marina, immediately east of the facility, has substantially changed the groundwater flow directions beneath the surface impoundments. The dewatering operations have now stopped and the aquifer should be stabilizing to the altered conditions. At this time, it is not known whether the stabilized hydrogeologic conditions will be the same as those prior to the recent marina activities. The groundwater monitoring requirements specified in this Order and the Self Monitoring Program are based on available information. The groundwater monitoring program may be amended as new information becomes available.

Findings Related to the Toxic Pits Cleanup Act of 1984

30. The Toxic Pits Cleanup Act of 1984 is contained in Sections 25122.7 and 25208 in the California Health and Safety Code (HSC).
31. Section 25208.4 (a) of the California Health and Safety Code (HSC) requires that on or after June 30, 1988, no person shall discharge liquid hazardous wastes or hazardous wastes containing free liquids into a surface impoundment if the surface impoundment, or the land underneath it, contains hazardous wastes and is within one-half mile upgradient of a potential source of drinking water. Note that pursuant to Section 25208.2(f) "discharge" includes storage of liquid hazardous wastes or hazardous waste containing free liquids. Section 25208.4 (b) allows the Discharger to apply to the Board for an exemption from subsection 25208(a). To apply for an exemption the Discharger must:
 - A. Demonstrate that extremely hazardous wastes are not currently being discharged into the surface impoundment, and either,
 - the records of the discharger indicate that no extremely hazardous wastes have been discharged into the impoundment, or
 - that extremely hazardous wastes are not present in the surface impoundment, vadose zone or ground water; and
 - B. The surface impoundment is in compliance with construction standards and the discharger has submitted a hydrogeologic assessment report.
32. The Discharger has applied for exemptions from Section 25208.4(a) for the BCCSP, BCCRP, APWP, and DNP; exemptions were not applied for for the OWCP and OWEP.
33. Contra Costa Water District operates an intake structure which draws drinking water from Suisun Bay approximately one half mile downstream of the facility. Since the groundwater beneath the ponds are exchanged with Suisun Bay water, the facility is within one-half mile upgradient of a source of drinking water.

34. From the information available, extremely hazardous wastes are not currently nor have ever been discharged into the BCCSP, BCCRP, APWP, or DNP. These impoundments are in compliance with Section 25208.5 of the HSC. A Hydrogeologic Assessment Report pursuant to Section 25208.8 of the HSC has been submitted for this facility. Based on these facts, pursuant to Section 25208.4(b)(1) of the HSC, the Board hereby grants exemptions to Section 25208.4 (a) of the HSC for the BCCSP, BCCRP, APWP, and DNP. The exemptions must be renewed every five years.
35. Section 25208.4(c) of the HSC requires that a person shall not discharge any restricted wastes into a surface impoundment unless the person is granted an exemption pursuant to Section 25208.16. This exemption is only available for surface impoundments used for temporary storage and treatment of boiler cleaning wastes at fossil-fueled powerplants owned or operated by a public utility subject to the jurisdiction of the Public Utilities Commission that generates electricity for sale to the public.

In order for the exemption to be granted, the Discharger must meet the above conditions, and the following conditions:

- A. Demonstrate that extremely hazardous wastes are not currently being discharged into the surface impoundment, and
- either the records of the discharger indicate that no extremely hazardous wastes have been discharged into the impoundment, or that extremely hazardous wastes are not present in the surface impoundment, vadose zone or ground water; and
- B. Operate the surface impoundment so that it is used for temporary storage and non-continuous batch treatment, all hazardous wastes are removed after batch treatment within 30 days of discharge into the impoundment, and the surface impoundment is visually inspected prior to each use and tested for integrity at least annually; and
- C. The surface impoundment is in compliance with construction standards and the discharger has submitted a hydrogeologic assessment report
36. The Discharger has applied for exemptions to Section 25208.16 for the BCCSP, BCCRP, and APWP.
37. Ponds APWP, BCCSP and BCCRP are used for temporary storage and treatment of boiler cleaning wastes at a fossil-fueled power plant subject to the jurisdiction of the Public Utilities Commission generating electricity for sale to the public. From the information available, extremely hazardous wastes are not currently or have ever been discharged into the APWP, BCCSP or BCCRP. The Discharger has proposed to assure that all hazardous wastes are removed after each batch treatment within 30 days of discharge into the surface impoundments if the discharge contains restricted hazardous waste. Each pond will be visually inspected prior to each use and tested for integrity at least annually. These impoundments will be in compliance with Section 25208.5 of the HSC when they are retrofitted as required in this Order. A Hydrogeologic Assessment Report pursuant to Section 25208.8 of the HSC has been submitted for this facility. Based on these facts, pursuant to Section 25208.16 of the HSC, the Board hereby grants exemptions from Section 25208.4(c) of the HSC for

the APWP, BCCSP, and BCCRP provided that the ponds are retrofitted as required by this Order. The exemptions must be renewed every five years.

38. Section 25208.5 (a) of the HSC requires that on or after January 1, 1989, no person shall discharge liquid hazardous wastes or hazardous wastes containing free liquids into a surface impoundment unless the surface impoundment is double lined, equipped with a leachate collection system, and groundwater monitoring is conducted. Section 25208.5 (c) allows the Discharger to apply to the Board for an exemption from this subsection. The Discharger has applied for exemptions from this section for the BCCSP, BCCRP, APWP, and DNP.
39. The Discharger submitted a retrofitting proposal for the Class I surface impoundments as described in Finding 13. Groundwater monitoring has been and will continue to be conducted.
40. In a letter date January 22, 1987 from the Environmental Protection Agency (EPA) to the Discharger, EPA indicated that triple liner and double leachate collection systems in the Class I surface impoundments will satisfy the Minimum Technology Requirements of the Hazardous and Solid Waste Amendments of 1984. The Minimum Technology Requirements will satisfy the construction standards of Section 25208.5 of the HSC. Therefore, under the provisions of TPCA, the Discharger's exemption request to allow retrofitting of the liners is unnecessary because the Discharger's retrofitting proposal is in compliance with Section 25208.5 of the HSC.
41. The specifications and provisions of this Order are designed to bring the facility into full compliance with Subchapter 15 requirements and TPCA.
42. The Board adopted a revised Water Quality Control Plan for the San Francisco Bay Region (Basin Plan) on December 17, 1986. The Basin Plan contains water quality objectives for ground waters and Suisun Bay and its contiguous waters.
43. The Basin Plan lists the beneficial uses of Suisun Bay and contiguous water bodies as:
 - * Municipal and Domestic Supply
 - * Industrial Service Supply
 - * Navigation
 - * Water Contact Recreation
 - * Non-contact Water Recreation
 - * Commercial and Sport Fishing
 - * Wildlife Habitat
 - * Preservation of Rare and Endangered Species
 - * Fish Migration
 - * Fish Spawning
 - * Estuarine Habitat
44. The Basin Plan lists the actual and potential beneficial uses of local ground waters as:
 - * Industrial Process Water
 - * Industrial Service Supply

- * Municipal and Domestic Supply
- * Agricultural Supply

45. The issuance of waste discharge requirements for this discharge is exempt from the provisions of Chapter 3 (commencing with Section 21000 of Division 13) of the Public Resources Code (CEQA) pursuant to Section 15301 of the California Administrative Code.
46. The Board has notified the Discharger and interested agencies and persons of its intent to prescribe waste discharge requirements for the discharge and has provided them with an opportunity for a public hearing and an opportunity to submit their written views and recommendations.
47. The Board, in a public meeting, heard and considered all comments pertaining to the discharge.

IT IS HEREBY ORDERED THAT Pacific Gas and Electric Company, in order to meet the provisions contained in Division 7 of the California Water Code and regulations adopted thereunder, shall comply with the following:

A. Prohibitions

1. The discharge of any waste from the surface impoundments to ground waters of the State or to the unsaturated zone surrounding the surface impoundments is prohibited.
2. The discharge of any waste from the surface impoundments to any surface waters of the State is prohibited unless permitted under the National Pollutant Discharge Elimination System.
3. The storage and treatment of hazardous waste shall not create a nuisance or pollute State waters as defined in Section 13050 (1) and (m), respectively, of the California Water Code.
4. There shall be no discharges to a surface impoundment, and any residual liquids and sludges shall be removed expeditiously, if any liquids are detected in the secondary leachate collection system for the Class I surface impoundments unless approval is granted by the Executive Officer. There shall be no discharge to any surface impoundment in the event of any containment system failure which causes a threat to water quality.
5. There shall be no discharge or storage of liquid hazardous waste or hazardous waste containing free liquids in any Class I surface impoundments on or after July 1, 1988 unless it has been retrofitted in accordance with the specifications contained in this Order, and received the appropriate exemptions.
6. The discharge or storage of liquid extremely hazardous waste or extremely hazardous waste containing free liquids in the surface impoundments is prohibited.
7. The discharge or storage of liquid hazardous waste or hazardous waste containing free liquids in the Class II ponds is prohibited.

8. The discharge or storage of liquid hazardous waste or hazardous waste containing free liquids in OSP after June 30, 1988 is prohibited.

B. General Specifications

1. The waste management units shall prevent migration of wastes to adjacent geologic materials, groundwater, or surface water, throughout the operation, closure, and post-closure periods.
2. All waste management units shall have foundations capable of supporting the containment structures and capable of withstanding hydraulic pressure gradients to prevent failure due to settlement, compression, or uplift.
3. The materials used for containment structures shall have appropriate chemical and physical properties to ensure containment of wastes at all times. Liner permeabilities shall be determined relative to the liquids contained in the respective ponds and shall be determined by appropriate tests methods in accordance with accepted civil engineering practice.
4. The waste management units shall be designed and constructed to withstand ground accelerations associated with the maximum credible earthquake without damage to the foundation, the containment structures, and other structures which control leachate, surface drainage, or erosion.
5. The containment structures shall be designed by, and constructed directly under the supervision of and certified by, a registered civil engineer or a certified engineering geologist. Facilities shall receive written approval of the construction by Executive Officer before use of the facility commences.
6. Direct pipeline discharge to surface impoundments shall be either equipped with devices, or shall continue to have fail-safe operating procedures, to prevent overfilling.
7. The surface impoundments shall be designed, constructed, and operated to prevent scouring of containment structures at points of discharge into the impoundments and by wave action at the waterline.
8. All engineering and geological submittals shall be prepared under the direct supervision of and certified by a registered civil engineer or a certified engineering geologist.
9. The Discharger shall install, maintain in good working order, and operate efficiently any facility, alarms, or control system necessary to assure compliance with these Waste Discharge Requirements.
10. The Discharger shall propose, and implement after receiving Executive Officer approval, detailed operating and contingency plans for each retro-fitted surface impoundment. The plans shall include, at the minimum, procedures for routine inspection of the surface impoundments, discharge into a pond, discharge out of a pond, leachate detection system monitoring, contingency measures if leachate is detected or problems with the containment structures are found, and notification of agencies. The

plan shall provide rationale for the proposed procedures with a discussion of actual volumes involved, where appropriate.

11. The Discharger shall operate all impoundments to ensure that wastes will be a minimum of five feet above the highest anticipated elevation of underlying ground water.

C. Specification for Class I Surface Impoundments

1. The Class I hazardous waste surface impoundments shall be lined with 80 mil HDPE synthetic liners as described in Finding 13. The detailed design, construction plan, and quality assurance/quality control program shall receive the written approval of the Executive Officer prior to the beginning of construction.
2. The Class I hazardous waste surface impoundments shall be equipped with two blanket type leachate collection and removal systems. The systems shall meet the specifications given in Section 2543 of Subchapter 15. The detailed design, construction plan, and quality assurance/quality control program shall receive the written approval of the Executive Officer prior to the beginning of construction.
3. The Class I waste management units shall be designed and constructed to prevent inundation, erosion, slope failure, and washout under conditions of probable maximum precipitation.
4. The BCCSP, BCCRP, APWP, and OSP shall be operated to accommodate seasonal precipitation of a 100 year return frequency season and probable maximum precipitation conditions to prevent overtopping. In any case, a minimum of two feet freeboard shall be maintained in each pond at all times.
5. The DNP shall be operated to accommodate seasonal precipitation and probable maximum precipitation conditions to prevent overtopping.
6. If the Board determines that any of the Class I surface impoundments are polluting or threatening to pollute State waters, the Board may revoke the exemptions to Section 25208.4(a) and (c) granted to the BCCSP, BCCRP, APWP, and DNP.
7. The Discharger shall remove all hazardous waste from the Class I surface impoundment within 30 days if a discharge into the surface impoundment contains restricted hazardous waste.

D. Specifications for Class II Surface Impoundments

1. The Class II surface impoundments shall be lined with liners which meets the specifications given in Sections 2541 (e) and 2542 of Subchapter 15, unless an exemption is granted by the Board. The detailed design, construction plan, and quality assurance/quality control program shall receive the written approval of the Executive Officer prior to the beginning of construction.

2. The Class II surface impoundments shall be equipped with blanket type leachate collection and removal systems if they are double lined. The systems shall meet the specifications given in Section 2543 of Subchapter 15, unless granted an exemption by the Board. The detailed design, construction plan, and quality assurance/quality control program shall receive the written approval of the Executive Officer prior to the beginning of construction.
3. The Class II surface impoundments shall be designed and constructed to prevent inundation, erosion, slope failure, and washout under conditions of a 24 hour storm with a 1000 year return frequency.
4. The Class II surface impoundments shall be operated to accommodate seasonal precipitation of a 10 year return frequency season and precipitation conditions of a 24 hour storm with a 1000 year return frequency to prevent overtopping.
5. The sludge from the OWCP and OWEP shall be removed semi-annually in order to prevent the metal concentrations from accumulating to hazardous levels, unless the Discharger demonstrates to the satisfaction of the Executive Officer that hazardous levels of metals have not accumulated.

E. Specifications for Hydrogeologic Investigation

1. The Discharger shall complete the studies of tidal effects and seasonal variations in groundwater gradients.

F. Groundwater Monitoring Specifications

1. The Discharger shall monitor the unsaturated zone in the areas of the waste management units in accordance with Section 2559 of Subchapter 15 unless granted an exemption.
2. All monitoring wells shall be constructed in a manner that maintains the integrity of the drill hole, prevents cross-contamination of saturated zones, and produce representative groundwater samples from discrete zones within the aquifer unit each well is intended to monitor.
3. All borings for monitoring wells shall be continuously cored, and the cores shall be archived. The drill holes shall be logged during drilling under the direct supervision of a registered geologist whose signature appears on the corresponding well log. Logs of monitoring wells shall be filed with the Department of Water Resources. All information used to construct the wells shall be submitted to the Board upon completion of the wells.
4. The interim points of compliance shall completely surround the Class I and II surface impoundments as shown in Attachment A. The points of compliance may be modified as appropriate by the Executive Officer. The groundwater monitoring network shall be designed, and upgraded to detect leakage from the surface impoundments at the earliest possible opportunity.

5. The interim groundwater Water Quality Protection Standards (WQPS) for the upper aquifer are as follows:

<u>Parameter</u>	<u>Water Quality Protection Standards (mg/L)</u>
Iron	25
Chromium, Total	0.13
Copper	0.1
Lead	0.03
Nickel	0.12
Vanadium	0.2
Zinc	0.24
Nitrate	45
Fluoride	4.0
Total Organic Carbon	110
pH	6.5 - 8.5
Phenol	0.012

6. The analytical results of groundwater quality shall be tabulated in a manner compatible with the comparison procedure given in Specification F.7 below, for determination of significant differences. The data sheets provided by the laboratory shall also be included in the monitoring reports. Any alternate analytical procedures used or other unusual circumstances associated with the analyses shall be noted.
7. The Discharger shall use both of the following methods for determining if a significant difference has occurred in groundwater quality for each sampling and analysis event.
- The analytical results from each monitoring well shall be compared to the interim WQPS after each sampling event to determine if a significant difference has occurred in groundwater quality.
 - The groundwater quality in each monitoring well shall be compared to itself after each sampling event to determine if the concentrations in each well are increasing over time. For each well, if a concentration of a parameter, which has a interim WQPS, is statistically significantly greater than the mean concentration found in the same well during the initial sampling events, then a significant difference has occurred in groundwater quality. This comparison method does not apply to wells which do not have the necessary historic data. For these wells, this comparison method becomes applicable starting with the fifth quarterly sampling event. Statistically significant increase is as defined in Subchapter 15, federal regulations issued pursuant to RCRA or an equivalent statistical method.
8. If a significant difference is found using the comparison procedures specified in F.7, above, or if the water quality protection standards have been exceeded the Discharger shall do the following:
- notify the Board in writing within 7 days of the determination of significant increase, indicating what water quality protection standards have been exceeded.

- b. immediately resample the specific well(s) in which the significant difference was found using identical procedures for sample collection, sample analyses, and determination of significant difference.
 - c. if the second round of analyses indicates that the statistical difference is significant, within 90 days, submit to the Board an amended Report of Waste Discharge for establishment of a verification monitoring program meeting the requirements of Section 2557 of Subchapter 15. The report shall include the following information:
 - i) the concentration of any waste constituents found in the groundwater at each monitoring point; and
 - ii) any proposed changes to the groundwater monitoring system; and
 - iii) any proposed changes to monitoring frequency, sampling and analysis procedures or methods, or statistical procedures.
9. If at any time, the Board determines that the detection monitoring program is no longer appropriate, the Discharger shall, within 90 days, submit an amended Report of Waste Discharge requesting authority to make appropriate changes.

G. Provisions

- 1. The Discharger shall comply with Prohibitions A.1 through A.8., Specifications B.1., B.2., B.5. through B.9., C.3. through C.6., D.3. through D.5., and F.2. through F.9. immediately.
- 2. The Discharger shall comply with Specification B.3 as follows by completing liner and waste compatibility testing according to procedures specified in "Test Methods for Evaluating Solid Waste" (EPA/SW-846), and submitting a report documenting the findings of the compatibility tests by May 1, 1988.
- 3. The Discharger shall comply with Specification B.10 by submitting the proposed operation/contingency plan acceptable to the Executive Officer by May 1, 1988.
- 4. The Discharger shall comply with Specifications C.1 and C.2 as follows:
 - a. submit detailed design and specifications, construction plan, quality assurance/quality control program for the liners and leachate collection systems in the Class I surface impoundments acceptable to the Executive Officer by December 1, 1987.
 - b. submit a detailed construction schedule by April 1, 1988. This shall include a date for submitting documentation of the completed construction of the liners and leachate collection system for the Class I surface impoundments including as-built drawings and specifications.

5. The Discharger shall comply with Specification C.7 as follows:
 - a. submit a proposal for monitoring each wastestream discharged into the BCCSP and BCCRP, and assuring that all hazardous waste will be removed from a surface impoundment within 30 days of a discharge of restricted hazardous waste into a surface impoundment that is acceptable to the Executive Officer by January 1, 1988.
 - b. implement approved waste stream monitoring and waste removal plan immediately upon Executive Officer approval.
6. The Discharger shall comply with Specifications D.1 and D.2 as follows:
 - a. Submit a demonstration acceptable to the Executive Officer that OWCP and/or OWEP do not contain hazardous waste by December 1, 1987.
 - i. If the demonstrations shows hazardous waste in the OWCP and/or OWEP, submit a closure plan for the pond(s) acceptable to the Executive Officer by May 1, 1988, and stop all discharge or storage of liquid hazardous waste and hazardous waste containing free liquid in the pond(s) by June 30, 1988.
 - ii. If the Discharger demonstrates that OWCP and OWEP do not contain hazardous waste, then the Discharger must comply with G.7.b., below. The Discharger must comply with G.7.b. for the CSP.
 - b. Demonstrate compliance with Subchapter 15 siting and construction performance standards by November 1, 1989. Compliance may be achieved by implementing a Board approved engineered alternative. The discharger shall submit to the Board by May 1, 1988 a conceptual design for engineered alternative construction, or a conceptual design for meeting the prescribed standards of Subchapter 15. Thereafter, the Discharger shall submit quarterly reports demonstrating progress towards compliance.
7. The tasks described in Specification E.1. shall be completed by November 1, 1987. A report documenting the findings from this task shall be submitted by December 1, 1987. All the raw data used to support any conclusions drawn shall be included. The report shall be prepared under the direct supervision of and certified by a registered civil engineer or certified engineering geologist.
8. The Discharger shall comply with Specification F.1 as follows:
 - a. Submit additional information for an exemption request for vadose zone monitoring acceptable to the Executive Officer by October 1, 1987.
 - b. If the exemption request is denied, submit a proposal to implement vadose zone monitoring acceptable to the Executive Officer by December 1, 1987; and install and implement the approved vadose zone monitoring program by a date to be specified by the Executive Officer.

9. The Discharger shall submit a Groundwater Monitoring Program with a time schedule for implementation which complies with Article 5 of Subchapter 15 and reflects all the hydrogeologic and groundwater quality information available to date that is acceptable to the Executive Officer by February 1, 1988.
10. The Discharger shall implement the attached Self Monitoring Program, and any subsequent modifications made by the Executive Officer, which is attached to and incorporated into this Order.
11. The Board shall be notified by telephone within twenty four hours from the time of discovery of any containment structure failure in any of the regulated surface impoundments. A written account of the incident, the steps taken to remedy the problem, a plan and schedule for resolution of the problem, and a proposal to prevent the problem from recurring shall be submitted to the Board within 7 working days of the discovery unless granted a verbal extension by the Executive Officer.
12. The Discharger shall apply for renewal of exemptions to Section 25208.4 (a) for the BCCSP, BCCRP, APWP, and DNP, and to Section 25208.4 (c) for the BCCSP and BCCRP every five years. The application and fees are due on February 19, 1991.
13. After notice and opportunity for hearing, this Order may be terminated or modified for cause, including but not limited to:
 - a. Violation of any term or condition of this Order.
 - b. Obtaining this Order by misrepresentation, or failure to disclose fully all relevant facts.
 - c. A change in any condition that requires either a temporary or permanent change, reduction or elimination of the authorized discharge to the ponds.
14. The Board or its authorized representative shall be allowed:
 - a. Entry upon premises where a regulated facility or activity is located or conducted, or where records are kept under the conditions of the Order;
 - b. Access to and copy at reasonable times any records that must be kept under the conditions of the Order;
 - c. To inspect at reasonable times any facility, equipment (including monitoring and control equipment), practices, or operations regulated or required under the Order; and
 - d. To photograph, sample, and monitor at reasonable times for the purpose of assuring compliance with the Order.
15. This Order rescinds Order No. 87-17.

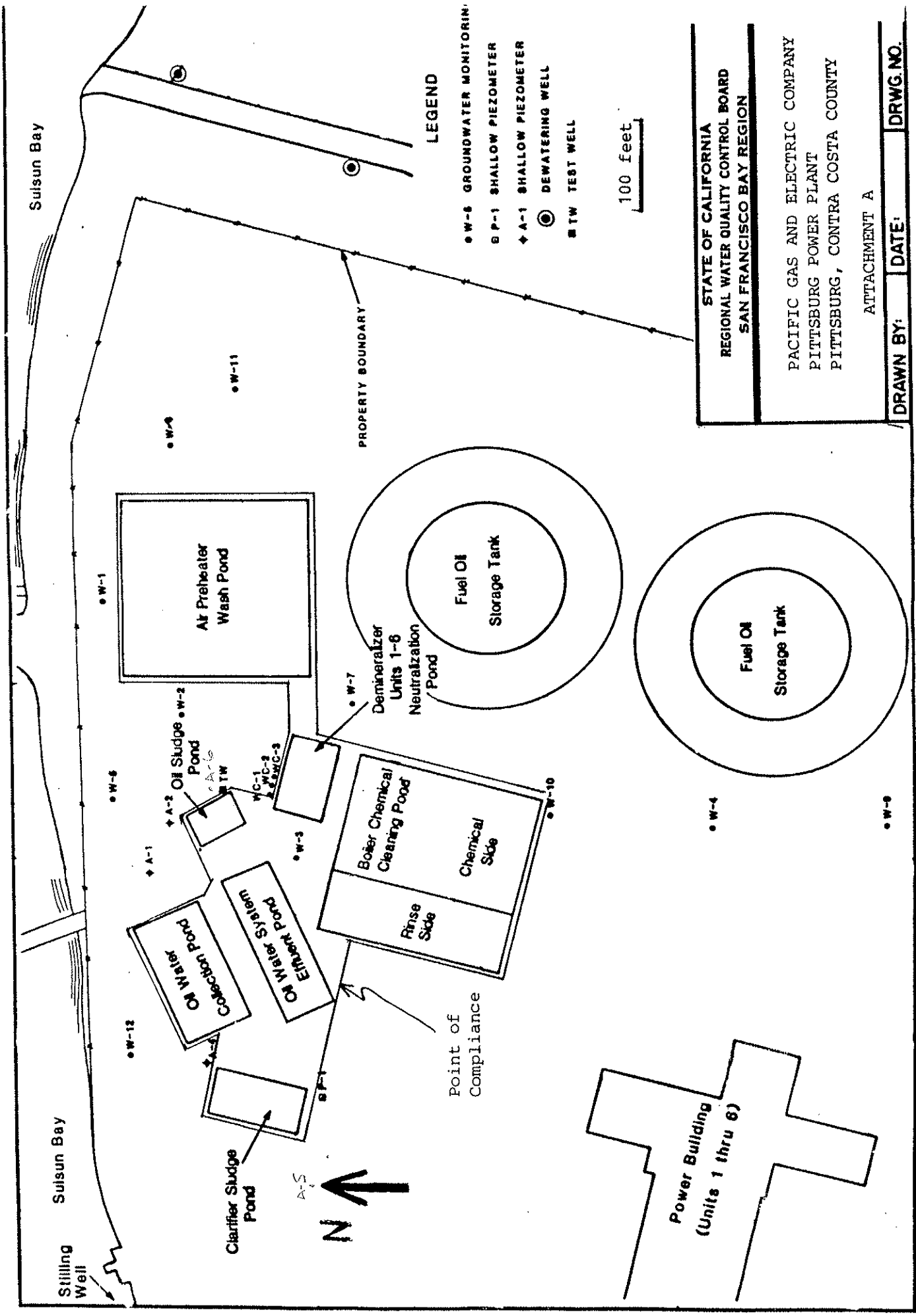
16. This Order is subject to Board review and updating, as necessary, to comply with changing State and Federal laws, regulations, policies, or guidelines; changes in the Regional Board Basin Plan; or changes in the discharge characteristics, in five year increments from the effective date of this Order.

I, Roger B. James, Executive Officer, do hereby certify the foregoing is a full, true, and correct copy of an Order adopted by California Regional Water Quality Control Board, San Francisco Bay Region on September 16, 1987.



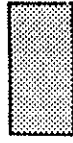
Roger B. James
Executive Officer

Attachments:
Site Map
Flow Scheme



STATE OF CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD SAN FRANCISCO BAY REGION	
PACIFIC GAS AND ELECTRIC COMPANY PITTSBURG POWER PLANT PITTSBURG, CONTRA COSTA COUNTY	
ATTACHMENT A	
DRAWN BY:	DATE:
	DRWG. NO.

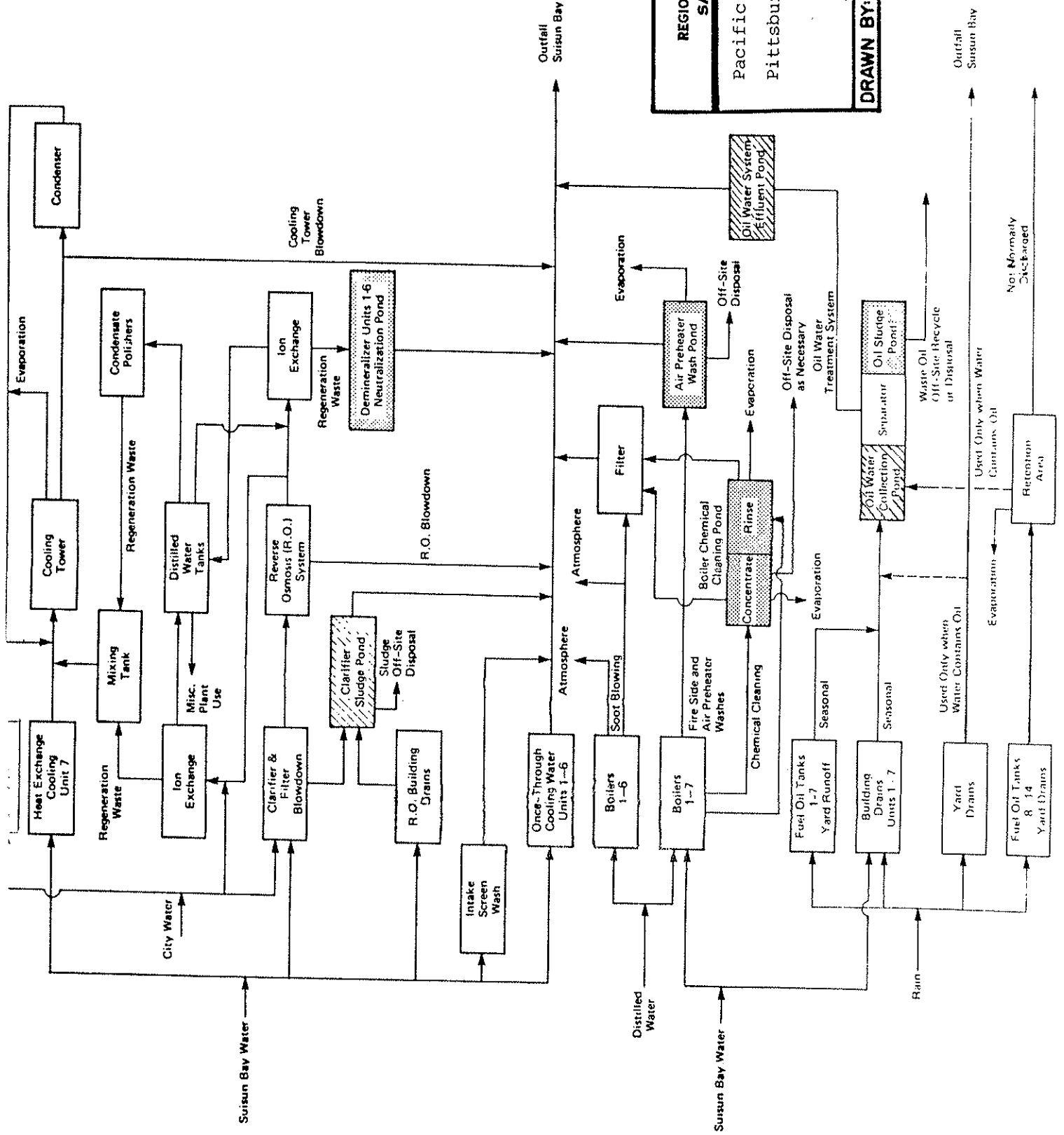
EXPLANATION



Class I
Impoundments



Class II
Impoundments



STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

Pacific Gas and Electric Company
Pittsburg Power Plant

Attachment B

DRAWN BY: DATE:

DRWG. NO.

Not Normally
Discharged

CALIFORNIA REGIONAL WATER QUALITY CONTROL BOARD
SAN FRANCISCO BAY REGION

SELF-MONITORING PROGRAM

FOR

PACIFIC GAS AND ELECTRIC COMPANY
PITTSBURG POWER PLANT
PITTSBURG, CONTRA COSTA COUNTY

PART A

A. GENERAL

Reporting responsibilities of dischargers are specified in Sections 13225(a), 13267(b), 13383, and 13387(b) of the California Water Code and this Regional Board's Resolution No. 73-16. This Self-Monitoring Program is issued in accordance with Provision G.10. of Regional Board Order No. 87-122.

The principal purposes of a self-monitoring program by a discharger are: (1) to document compliance with Waste Discharge Requirements and prohibitions established by the Board, (2) to facilitate self-policing by the discharger in the prevention and abatement of pollution arising from waste discharge, (3) to develop or assist in the development of effluent standards of performance, pretreatment and toxicity standards, and other standards, and (4) to prepare water and wastewater quality inventories.

B. SAMPLING AND ANALYTICAL METHODS

Sample collection, storage, and analyses shall be performed according to the most recent version of "Test Methods for Evaluating Solid Waste" (EPA/SW-846), "Methods for Chemical Analysis of Water and Waste" (EPA/-600/4-79-020), "Methods for Organic Chemical Analysis of Municipal and Industrial Wastewater" (EPA-600/4-82-057), and/or "Standard Methods for the Examination of Water and Wastewater."

Water and waste analyses shall be performed by a laboratory approved for these analyses by the State Department of Health Services. The director of the laboratory whose name appears on the certification shall supervise all analytical work in his/her laboratory and shall sign all reports of such work submitted to the Regional Board.

All monitoring instrument and equipment shall be properly calibrated and maintained to ensure accuracy of measurements.

C. DEFINITION OF TERMS

1. A grab sample is a discrete sample collected at any time.
2. Receiving water(s) refers to any water which actually or potentially receives surface or ground waters which pass over, through, or under waste materials or contaminated soils. In this case the ground waters which pass over, through, or under waste materials or contaminated soils. In this case the ground water beneath and adjacent to the units, the surface runoff from the units, and Suisun Bay.

D. SCHEDULE OF SAMPLING, ANALYSIS, AND OBSERVATIONS

The Discharger is required to perform sampling, analysis, and observations according to the schedule specified in Part B, and the requirements of Article 5 of Subchapter 15.

E. RECORDS TO BE MAINTAINED

All records pertaining to information required by the Self Monitoring Program shall be maintained by the discharger, and shall be retained throughout the active life, closure, and post-closure periods of the facility. This period of retention shall be automatically extended during the course of any unresolved enforcement action regarding this facility or as requested by the Regional Board. Such records shall show the following for each sample:

1. Identity of sample and sample station number.
2. Date and time of sampling, and name and qualifications of sampling personnel.
3. Procedures used to collect the sample and a map showing the sampling location.
4. Date and time that analyses are started and completed, and name of the personnel performing the analyses.
5. Complete procedures used, including method of preserving the sample, and the identity and volumes or reagents used. A reference to a specific section of a reference required in Part A Section B is satisfactory.
6. Calculation of results.
7. Results of analyses, detection limits for each parameter, and results of quality control/quality assurance analyses including: sampling equipment, field, travel and laboratory blanks; duplicates; and recovery rates.
8. Results of the ground water quality comparison analyses.
9. Chain of custody forms for each sample.
10. Transmittal of results to agencies.

F. REPORTS TO BE FILED WITH THE REGIONAL BOARD

1. Written self-monitoring reports shall be filed at frequencies specified in Part B. The reports shall contain the following as appropriate:
 - a. For every report, a Letter of Transmittal. The letter should discuss the essential points in each self-monitoring report. Such a letter shall include a discussion of any significant findings and violation(s) of requirements found during the monitoring period and actions taken or planned for correcting the violation(s). If the discharger has previously submitted a detailed time schedule for correcting violations(s) a reference to the correspondence transmitting such schedule will suffice. If no violations have occurred in the last monitoring period this shall be stated in the letter of transmittal. Monitoring reports and the letter transmitting reports shall be signed by a principal executive officer at the level of vice president or his duly authorized representative if such representative is responsible for the overall operation of the facility from which the discharge originates. The letter shall contain a statement by the official, under penalty of perjury, that to the best of the signer's knowledge the report is true, complete, and correct.
 - b. A map or aerial photograph showing observation and monitoring station locations.
 - c. For monthly reports, a listing and/or description of the Standard Observations specified in Part B of the Self-Monitoring Program.
 - d. For all reports involving chemical data, all chemical analytical data gathered to date tabulated by individual well, waste stream, or pond content. This shall also include the laboratory achieved detection limits achieved for each parameter.
 - e. For all reports involving chemical data, a list of the analytical methods used by the laboratory performing the analysis, and the method detection limits for each parameter.
 - f. For all reports involving chemical data, quality assurance data. This shall include recovery rates, results from blanks, spikes, and duplicate samples. An explanation for any recovery rate less than 80% shall be included.
 - g. For all reports involving chemical data, copies of the analytical results supplied by the laboratory.
 - h. For ground water monitoring reports, a compliance evaluation summary of the ground water chemical data obtained for that quarter. This summary shall contain:
 - 1) A table for each monitoring well with the following information:
 - A. Monitoring parameters
 - B. Water Quality Protection Standards for each parameter
 - C. Average concentration for each parameter over the previous

- four quarterly monitoring events.
- D. Measured concentrations found in the current sampling event
- E. Whether a significant difference was found for each parameter.

The measured concentrations shall be reported with a "<" symbol only if the value listed after the symbol is the detection limit achieved by the laboratory.

- 2) A graphical description of the velocity and direction of ground water flow under/around the waste management units, based upon the past and present water level elevations and pertinent visual observations at both high and low tides. At a minimum, this shall include water level contours at high and low tides.
- i. For ground water monitoring reports, a table of ground water level measurements at both high and low tides. Each well shall be measured at both high and low tides, the table shall include the time of measurement, the measured depths to ground water, the reference point (e.g. top of casing), the surveyed elevation of the reference point, the ground water elevation relative to mean sea level, and the time of closest high and low tide. Water levels should be taken in as close succession as possible and before any wells are purged. A recording of tide levels at the site shall be made during the tidal cycle(s) when the water levels are being measured. This tidal record, with appropriate time marks, shall be included with the table of measurements.
 - j. For ground water monitoring reports, field logs during well purging. The information contained in these logs shall include: the method of monitoring the field parameters, calibration of the field equipment, method of purging (if a pump is used, include pump placement and pumping rate), well recovery time, method of disposing of the purge water, the results of all field analyses, well number, date, depth to ground water, and method of measuring the water level.
 - k. For ground water monitoring reports, field logs for each ground water well sampled. The information contained in these logs shall include: the name of the person actually taking the sample, well number, date, time of sampling, method of sampling (if a pump is used, include the type of pump to be used and pump placement), sampling procedure, number and method of collecting equipment and field blanks, presence of travel blanks, well number where duplicate samples are taken, type sample containers and preservatives, any observations of the quality of the sample water (color, odors, immiscible phases, etc.), and any problems encountered during sampling.
- 2. By March 1 of each year the Discharger shall submit an annual report to the Regional Board covering the previous calendar year. This report shall contain:

- a. Tabular and graphical summaries of the monitoring data obtained during the previous year.
- b. A comprehensive discussion of the compliance record.
- c. A written summary of the ground water analyses indicating any change in the quality of the ground water.

PART B

A. Standard Observations

The following observations shall be made for each of the regulated surface impoundments daily.

- a. volume of discharge to each Class I surface impoundment
- b. volume of discharge from each surface impoundment
- c. volume and mechanism of discharge from each surface impoundment (liquid and sludge)
- d. freeboard in each surface impoundment
- e. leachate levels in the leachate detection/collection systems
- f. any maintenance activities for the surface impoundments
- g. any unusual conditions associated with the surface impoundments

A report shall be filed monthly by the fifteenth day of the following month.

B. Oil Water Collection and Effluent Pond Sludge Sampling and Analysis

The sludge in the Oil Water Collection and Effluent Ponds shall be sampled and analyzed semi-annually to determine the metal concentrations in the sludge. Sludge samples shall be collected from four locations within each pond, and a composite sample shall be analyzed for all priority metals. For parameters which exceed the STLC values, the sample shall be analyzed for the soluble fractions using the Waste Extraction Test. A report shall be filed on June 1 and December 1 each year with the results of the analyses.

C. Pond Waste Stream Sampling and Analysis

Each waste stream that is discharged to the Boiler Chemical Cleaning Solution Pond (BCCSP), the Boiler Chemical Cleaning Rinse Pond (BCCRP), the Air Preheater Wash Pond (APWP), and the Oil Water Collection Pond (OWCP) shall be sampled and analyzed annually. The samples shall be as representative as possible of the average discharge into the ponds over the year. The required analyses are as follows:

BCCSP, BCCRP, APWP: priority metals, iron, pH, ammonia, nitrate, fluoride

OWCP: oil and grease, trihalomethanes, priority metals, iron, organics
detected by EPA methods 624 and 625

A report shall be filed by March 1 each year with the results of the analyses.

D. Liner Integrity Inspection

The top liner in each of the eight surface impoundments shall be inspected each year to determine the integrity of the liner. The inspection method

must not damage the liner and shall be sensitive enough to detect potential problems. Any area(s) on the liner which may adversely affect the integrity of the liners shall be repaired before the surface impoundment is returned to operation. A report shall be filed by December 1 each year documenting the inspection and maintenance for each surface impoundment. The report shall include a detailed description and map(s) illustrating the inspection and repair procedures.

E. Ground Water Sampling and Analysis

1. Ground water monitoring shall be conducted on a quarterly basis on the wells listed in 2. below, for the parameters listed in 4. below. The vadose zone monitoring, if required, shall be conducted on a quarterly basis. A statistically valid number of replicates must be taken each time the ground water is sampled.

2. The following wells are the designated point of compliance wells and their locations are shown in Attachment A:

W-4	A-1	WC-1	W-1
W-9	A-2	WC-2	W-2
W-11	A-3	WC-3	W-3
A-5 (proposed)	A-4		W-5
	A-6 (proposed)		W-8
			W-10

3. The list of wells in 2, above, may be modified by the Executive Officer if new information becomes available.
4. The concentrations of the following indicator parameters shall be determined in groundwater samples from all monitoring wells during each sampling event:

<u>Metals</u>	<u>Organics</u>	<u>Miscellaneous</u>
Iron	Total Organic Carbon	Turbidity
Total Chromium	Phenolics	pH
Copper	Trihalomethanes	Fluoride
Lead	1,1,1-TCA	Nitrate
Nickel	Total Petroleum	
Vanadium	Hydrocarbons*	
Zinc		

The list of parameters may be modified by the Executive Officer if deemed necessary based on new information.

*To be monitored in wells A-1 through A-"n" only.

5. Ground water monitoring shall be conducted on a monthly basis on the wells listed in 6. below, for the parameters listed in 7. below, for three years, (two years, if there is consistent data between same months). A statistically valid number of replicates must be taken each time the ground water is sampled.

6. The following wells are designated for monthly monitoring as described in 5. above, and their locations are shown in Attachment A:

A-1	WC-1	W-1
A-4		W-2
A-5 (proposed)		W-5
A-6 (proposed)		W-9
		W-10
		W-11

7. The concentrations of the following indicator parameters shall be determined in groundwater samples monthly as described in 5. above.

Nickel

Zinc

TOC

pH (to be determined in the field)

Specific Conductance (to be determined in the field)

Additional parameters may be ordered by the Executive Officer if they are deemed necessary based on new information.

8. Sampling and analysis of ground water monitoring wells shall be conducted according to a Ground Water Monitoring Program (GWMP). At the very minimum, the GWMP shall specify detailed procedures for each of the activities described in Section E.1. to E.21. The GWMP or modifications to an approved GWMP must be approved by the Executive Officer prior to implementation.
9. The GWMP shall provide for well specific field activity logs to be filled out by field personnel during each sampling event. The information shall include, but not be limited to, the name(s) and qualifications of the sampling personnel, time sampling at the well is initiated, weather conditions, presence of immiscible layer, depth to water, purging procedure, purge pump calibration data, volume of purged water, method of handling purged water, method of measuring the field measured parameters, field measured parameters, the results of all field measured parameters, description of sampling procedure if different from that specified in the GWMP, list of sample bottles and their corresponding parameters, preservatives in sample bottles, sequence of sample collection, time finished, and any observations or problems encountered.
10. The GWMP shall provide for determining the presence of a floating immiscible layer in all wells at the beginning of each sampling event. This shall be done prior to any other activity which may disturb the surface of the water in a well, e.g. measuring water levels. If an immiscible layer is found, the Regional Board shall be notified within 24 hours.
11. The GWMP shall provide for measuring groundwater levels in all existing wells and piezometers at both high and low tides in the shortest time period possible, not to exceed one hour; provide for measuring the water levels before any of the wells are purged; and

provide for a recording of tide levels at the site stilling well be made during the tidal cycle(s) when the water levels are being measured. The data should be presented with the following well specific information: time of measurement, time of closest low tide, reference point, surveyed elevation of reference point relative to mean sea level, measuring instrument, depth to water, elevation of groundwater in feet relative to mean sea level.

12. The GWMP shall provide for the determination and analysis of the rate and direction of groundwater flow during each sampling event at both high and low tides. A water level contour map shall be constructed from the data. The analysis shall include a discussion of how observed groundwater rate, flow and direction compare with those from previous determinations, the appearance of any trends, and any other items which may indicate a potential change in the hydrogeologic conditions beneath the site.
13. The GWMP shall provide for measuring the depth to the bottom of each monitoring well annually.
14. The GWMP shall provide for purging well water immediately prior to sample collection. The groundwater from each well shall be purged of water such that the samples collected for analyses will be representative of aquifer formation water. This shall be determined by purging until temperature, pH and electrical conductivity have stabilized. The GWMP shall propose an acceptable range of variation of the field parameters based on the resolution of the field sampling equipment. The pumping rate during purging should be based on the aquifer characteristics at each well. Turbidity shall be measured in the field.
15. The GWMP shall provide for reporting the results of all field measured parameters.
16. The GWMP shall provide for quality control/quality assurance of the sampling and analysis process. This may include incorporating trip blanks for each sampling event, and field and sampling equipment blanks for each sampling day.
17. The GWMP shall provide for appropriate and consistent sample collection procedures to produce samples, which when analyzed will be indicative of groundwater quality.
18. The GWMP shall specify the preservatives that will be used to ensure that the samples will not degrade or be otherwise altered prior to chemical analyses.
19. The GWMP shall specify the manner in which the samples will be transported to the laboratory performing the analyses to ensure that the samples will arrive safely and unaltered. This includes, at the minimum, procedures for chain of custody control, packing, and shipment.
20. The detection limits shall be adequate to quantify the expected concentrations.

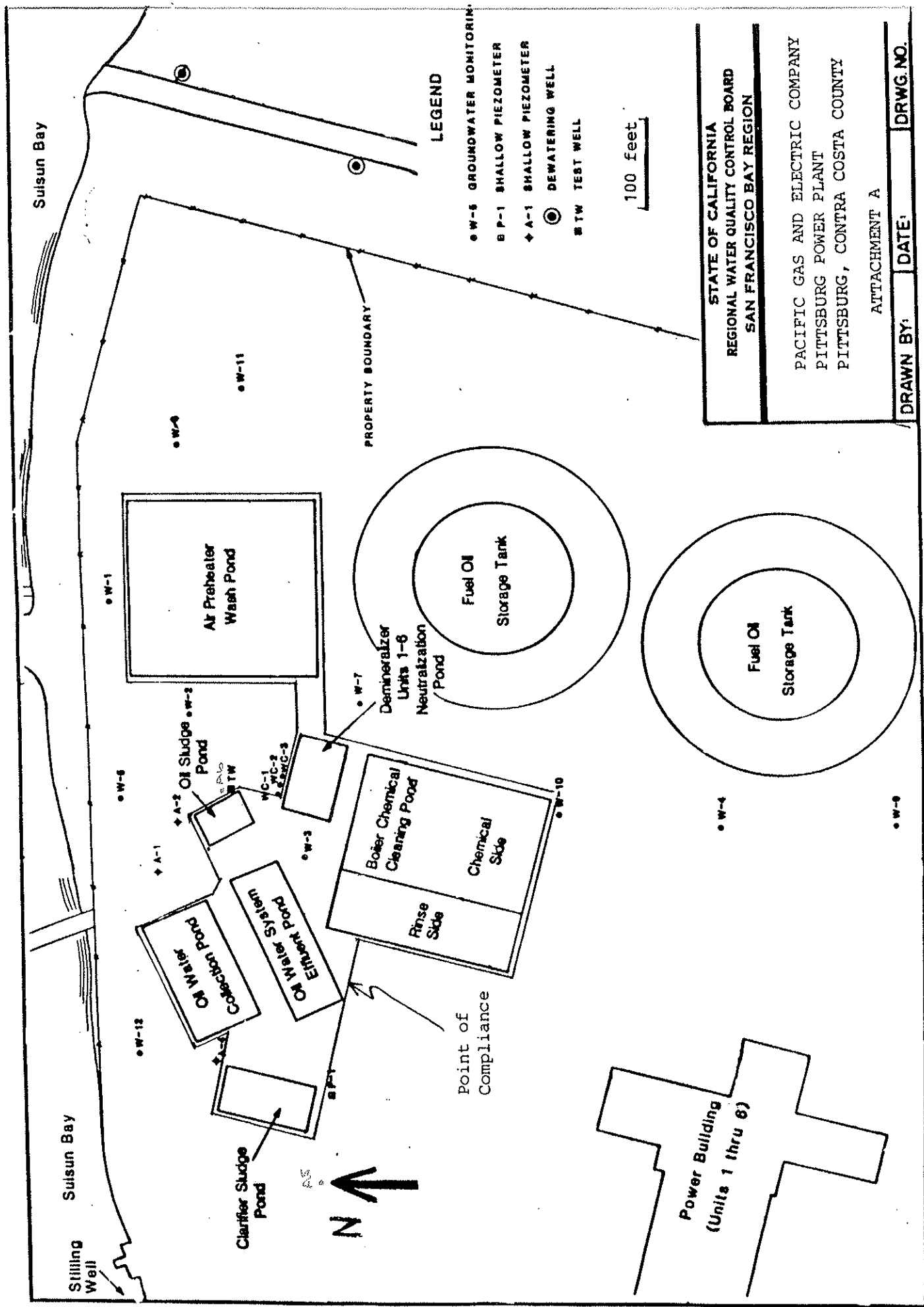
21. The analytical results of groundwater quality shall be tabulated in a manner compatible with the comparison procedure given in Specification F.7. of the Waste Discharge Requirements for determination of significant differences. The data sheets provided by the laboratory shall also be included in the monitoring reports. Any alternate analytical procedures used or other unusual circumstances associated with the analyses shall be noted.
22. The GWMP shall provide for determining whether there is a significant difference in groundwater quality in both the methods specified in the Waste Discharge Requirements.
23. The discharger shall complete the significant difference determination within 14 calendar days of receiving the results from the laboratory.
24. A report shall be filed on March 1, June 1, September 1, and December 1, each year with the results of the previous sampling and analysis event.

I, Roger B. James, Executive Officer, do hereby certify that the foregoing Self-Monitoring Program:

1. Has been developed in accordance with the procedures set forth in this Regional Board's Resolution No. 73-16 in order to obtain data and document compliance with waste discharge requirements established by this Board.
2. Has been ordered in writing by the Executive Officer on September 16, 1987, and becomes effective immediately.
3. May be reviewed at any time subsequent to the effective date upon written notice from either the Executive Officer or the discharger and will be revised upon written agreement of the Executive Officer and the discharger.


ROGER B. JAMES
Executive Officer

Attachment:
Site Map



STATE OF CALIFORNIA	
REGIONAL WATER QUALITY CONTROL BOARD	
SAN FRANCISCO BAY REGION	
PACIFIC GAS AND ELECTRIC COMPANY	
PITTSBURG POWER PLANT	
PITTSBURG, CONTRA COSTA COUNTY	
ATTACHMENT A	
DRAWN BY:	DATE:
	DRWG. NO.